JAMES CITY SERVICE AUTHORITY
WATER AND SANITARY SEWER MASTER PLAN GUIDELINES

The guidelines below are general in nature and are provided to assist the Designer in developing Master Utility Plans. These guidelines are not intended to be all encompassing. JCSA's review of the Master Utility Plan may require additional items be addressed which are not noted below. It is recommended the Applicant meet with JCSA to discuss the project and layout of public utilities prior to developing the Master Utility Plan.

GENERAL:

_____1. Proposed subdivision/development layout shown. Any development Phasing/Sections clearly delineated on the plan.
_____2. Plan provided at a legible scale.
_____3. Existing contours shown and labeled.
_____4. North arrow and graphic scale bar provided.
_____5. Developer's and Engineer's contact information provided on the plan.
_____6. Existing JCSA Utilities shown and size labeled. Proposed connection point(s) identified.
_____7. Source of mapping identified on the plan (County GIS, aerial mapping, physical survey, etc).
_____8. Existing JCSA Lift Stations and Well Facility locations identified on the plan.
_____9. Master Utility Plan submitted to DEQ and/or VDH where required (refer to JCSA Criteria Section 1.2).
_____10. Property lines, existing right-of-ways and adjoining parcels shown.

SANITARY SEWER SYSTEM MASTER PLAN:

_____1. Gravity sewer and/or force main system layouts shown and agree with calculations/hydraulic modeling. Pipe sizes and direction of flow indicated.
_____2. Sanitary Sewer Summary table provided on the plan with Phases/Sections tabulated individually. Table shall include the number of dwelling units, commercial/retail square footage, the per unit flow multiplier (per JCSA Criteria Table 2.1), duration, the Average Daily Flow (GPD) and the Peaked Flow (GPM). Totals (#units, sewer flow, etc) shall be provided at the bottom of the Summary Table.
_____3. Peaked Flows are shown cumulative along the sewer network. The composite flow at the discharge point shall equal the Sanitary Sewer Summary Table flow.
_____4. Manholes shown at key locations with reference label. Structure rim and invert elevations provided.
_____5. Manhole spacing and minimum pipe slope meet JCSA requirements.
_____6. Sewer collection and/or force mains sized to accommodate future system extension.
_____7. Any manholes exceeding 25-feet in depth are clearly identified on the plan (refer to JCSA Criteria Section 2.19).

_____8. Lift Station location(s) and size coordinated with the Chief Engineer of Wastewater.
_____9. Existing sewer collection systems checked to confirm the number of ERC's proposed do not exceed system capacity.
_____10. Sewer bridges identified on the plan.
_____11. Lots requiring grinder pumps are identified with "GP". Typically up to 5% of the total # of proposed lots to be served by grinder pumps, unless approved by the Chief Engineer of Wastewater.
_____12.. Invert of existing manhole(s) proposed for connection field verified.
_____13. Calculations provided for force main and low pressure lines substantiating required pipe size and velocity.
_____14. Sanitary sewer system designed in accordance with JCSA Criteria 2.10 E thru H.

WATER SYSTEM MASTER PLAN:

_____1. Water Distribution system layout shown. Pipe sizes, node labeling and pipe segment labeling agree with the hydraulic modeling.
_____2. Water Demand Summary table provided on the plan with Phases/Sections tabulated individually. Table shall include the number of dwelling units, commercial/retail square footage, the per unit flow multiplier (JCSA Table 2.1), duration, the Average Daily Demand (GPM), Max Day Demand (GPM), Peak Hour (GPM), proposed irrigation requirements and required fire flow at each node. Totals (#units, demands, etc) shall be provided at the bottom of the Summary Table. Node demands listed agree with the hydraulic model.
_____3. Pump location and reservoir identified on the plan and agrees with the fire flow test performed.
_____4. Any reduction in required fire flows (per JCSA Criteria Section 2.11) shall be approved by the JCC Fire Department prior to JCSA approval of the Master Plan. A maximum single flow from any fire hydrant shall not exceed 1,000 gpm.
_____5. Hydraulic modeling provided in accordance with JCSA Criteria Section 2.8 and sealed by a Licensed Professional Engineer registered in the Commonwealth of Virginia.
_____6. System design considers possibility of system extension to adjoining parcels.
_____7. System looped (either internal to the site or connection to existing mains) to eliminate dead-end lines where feasible.
_____8. Waterline sizes meet conditions of JCSA Criteria Section 2.2.
_____9. Water Sample Stations identified.
_____10. If irrigation is not proposed for the development, a note shall be added to the Master Plan clearly stating this.